SECTION 9. 327 IAC 8-13-9 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-13-9 Chemical Treatment

Authority:

Affected:

Sec. 9. (a) General requirements for a public water system that uses chemical treatment in order to ensure that the finished water supplied to consumers meets the maximum contaminant levels contained in 327 IAC 8-2 are as follows:

(1) Feed equipment requirements are as follows:

(A) Chemical feeders shall be:

(i) accessible for repair and maintenance;

(ii) protected against dust hazard; and

(iii) accessible to the chemical storage area to minimize length of feed lines.

(B) Chemicals feeders and feed equipment shall be conveniently located as near as practical to the feed point and near points of application to minimize length of feed lines.

(C) Feed equipment shall be operated when there is flow past the point of application.

(D) Chemical feed rates shall be proportional to flow.

(E) A method of measuring chemicals shall be provided for all chemicals.

(F) A separate feeder shall be used for each chemical applied.

(G) Where disinfection is required, backup disinfection equipment shall be provided where necessary to meet contact and disinfection residual when operating conditions do not allow for the repair of the chlorinator during off-pumping periods. A permit must be obtained for each backup.

(2) Equipment shall be installed and operational at the water supply to comply with the residual requirements of this section.

(3) Piping Identification requirements are as follows:

(A) A water treatment facility shall have the means to clearly identify visible piping in a water treatment facility by way of labels, legends, colors, color coding as described in Recommended Standards for Water Works 2.14, or other approved standards. A consistent standard shall be used throughout the system.

(B) Visible potable water lines shall be clearly and permanently identified where dual water lines or pressure sewer systems exist.

(4) Storage and handling requirements are as follows:

(A) All chlorine cylinders, full, empty, or in use, shall be restrained in a secure position to prevent leakage or damage. One ton containers shall be secured to prevent movement.

(B)Feed stock solution must be maintained in such a manner that prevents biological growth.

(C) Corrosion-resistant containers shall be provided for solution tanks and feeders. Existing equipment may be used as long as the integrity is maintained.

(D) Appropriate personnel protection equipment must be provided. Material Safety Data Sheets or manufacturer's recommendations for handling products must be available where chemicals are stored or handled.

(E) Operator safety must be accomplished according to Recommended Standards for Water Works.

(b) Specific requirements for chlorination are as follows:

(1) Chlorination equipment shall be:

(A) Capable of maintaining a minimum free chlorine residual of 0.20 milligrams per liter or a minimum combined residual of one 1 milligrams per liter in all active parts of the distribution system.

(B) Capable of feeding chlorine to the water being treated at dosage rate of at least five (5.0) milligrams per liter except when the water has a high chlorine demand. Factors in determining chlorine demand are as follows:

(i) pH.

(ii) Water temperature.

(iii) Contact time.

(iv) Presence in the water of substances having chlorine demand such as hydrogen sulfide, iron, manganese and nitrogenous compounds including ammonia.

(v) Supplemental treatment such as aeration which reduces chlorine demand.

(2) Continuous disinfection of water drawn from groundwater sources may be required if water quality data, well construction, or system construction indicates a potential health hazard.

(3) Disinfection is to supplement and not replace proper well location, construction, and source protection.

(4) Testing for free and total chlorine residual shall be completed daily at the plant tap and in the distribution system according to the site sample plan. A free and total chlorine sample shall be taken prior to sampling for total coliform.

(5) A minimum chlorine contact time of thirty (30) minutes shall be provided for all public water systems. Contact time is measured as the time following filtration of water or chlorination of well water when there is no other treatment, and the time when the water reaches the first user.

(6) Distribution residual for ground water systems shall be maintained at a range from 0.2 to 0.5 milligrams per liter free chlorine and no less than one (1) milligram per liter total chlorine.

(7) If residual can not be maintained additional chlorination facilities shall be installed and operated.

(c) Chlorine operation records are kept as follows:

(1) A copy of the daily operating report records signed by the certified operator or registered person in responsible charge shall be submitted to the Indiana Department of Environmental Management each month. These operating reports shall show the following:

(A) Amount of water pumped.

(B) Chlorine chemical used.

(C) Amount of chlorine chemical fed.

(D) Calculated chlorine dosage.

(E) Residual of free and total chlorine test results from locations in the distribution system and plant.

(2) An individual set of records shall be maintained for each installation when more than one source of water with separate chlorination equipment is used.

(3) A copy of the daily operating report shall be maintained by the certified operator in charge of the public water system

(4) Records for all chlorination shall be kept for a period of five years.

(d) Specific requirements for treating with chloramines are as follows:

(1) Equipment used for the production for chloramines shall be:

(A) capable of maintaining a minimum one (1) milligrams per liter chloramines or a maximum of four (4.0) milligrams per liter in all active parts of the distribution system; and

(B) capable of producing chloramines in the water being treated at a dosage rate of four (4.0) milligrams per liter. Factors in determining chloramine demand are as follows:

(i) pH.

(ii) Water temperature.

(iii) Contact time.

(iv) Presence in the water of substances having chlorine demand such as hydrogen sulfide, iron, manganese and nitrogenous compounds including ammonia.

(v) Supplemental treatment such as aeration which reduces chlorine demand.

(2) Continuous disinfection of water drawn from groundwater sources may be required if water quality data, well construction, or system construction indicates a potential health hazard.

(3) Disinfection is to supplement and not replace proper well location, construction, and source protection.

(4) Testing for chloramine residual shall be completed daily at the plant tap and in the distribution system according to the site sample plan. A chloramine residual sample shall be taken prior to sampling for total coliform.

(5) A minimum contact time shall be meet according to standards set forth by EPA guidance of Microbial and Disinfection Byproducts Rules. Contact time is measured as the time following filtration of water or chlorination of well water when there is no other treatment, and the time when the water reaches the first user.

(6) Distribution residual concentration shall be maintained at no less than one (1.0) milligram per liter chloramines.

(7) If residual can not be maintained, additional disinfection facilities shall be installed and operated.

(8) Plant residual concentration shall be maintained at no less than one (1) milligrams per liter chloramines after the contact time requirement is satisfied.

(9) A Public Notice describing the adverse effects of using chloramines shall be given to all customers and shall include but is not limited to the following:

(A) Removal of water for fish tanks or ponds.
(B) Health effects on patients on dialysis.

(e) Chloramines operation records are kept as follows:

(1) A copy of the daily operating report records signed by the certified operator or registered person in responsible charge shall be submitted to the Indiana Department of Environmental Management each month. These operating reports shall show the following:

(A) Amount of water pumped.
(B) Amount of chemical used.
(C) Amount of chemical fed.
(D) Residual concentration of chloramine test results from the distribution and plant.

(2) An individual set of records shall be maintained for each installation when more than one source of water with separate disinfection equipment is used.

(3) A copy of the daily operating report shall be maintained by the certified operator in charge of the public water system

(4) Records for all disinfection shall be kept for a period of five years.

(f) Specific requirements for treating with chlorine dioxide are as follows:

(1) Equipment used for the production for chlorine dioxide shall be:

(A) capable of maintaining a minimum seven hundredths (0.07) milligrams per liter chlorine dioxide or a maximum eight tenths (0.8) milligrams per liter in all active parts of the distribution system; and
(B) capable of feeding chlorine dioxide to the water being treated at a dosage rate of two (2) milligrams per liter. Factors in determining chlorine dioxide demand are as follows:

(i) pH.
(ii) Water temperature.
(iii) Contact time.
(iv) Presence in the water of substances having chlorine demand such as hydrogen sulfide, iron, manganese and nitrogenous compounds including ammonia.
(v) Supplemental treatment such as aeration which reduces chlorine demand.
(vi) Development of byproducts such as chlorite, chlorate, and organic DBPs shall be tested on a regular basis

(2) Continuous disinfection of water drawn from groundwater sources may be required if water quality data, well construction, or system construction indicates a potential health hazard.

(3) Disinfection is to supplement and not replace proper well location, construction, and source protection.

(4) Testing for chlorine dioxide residual shall be completed daily at the plant tap and in the distribution system according to the site sample plan. A chlorine dioxide residual sample shall be taken prior to sampling for total coliform.

(5) A minimum contact time must be met according to standards set forth by EPA guidance of Microbial and Disinfection Byproducts Rules. Contact time is measured

as the time following filtration of water or chlorination of well water when there is no other treatment, and the time when the water reaches the first user.

(6) Distribution residual concentration shall be maintained at no less than seven hundredths (0.07) milligram per liter chlorine dioxide.

(7) If residual can not be maintained, additional disinfection facilities shall be installed and operated.

(8) Plant residual concentration shall be maintained at no less than one (1) milligrams per liter chlorine dioxide after the contact time requirement is satisfied.

(g) Chlorine dioxide operation records are kept as follows:

(1) A copy of the daily operating report records signed by the certified operator or registered person in responsible charge shall be submitted to the Indiana Department of Environmental Management each month. These operating reports shall show the following:

(A) Amount of water pumped.

(B) Amount of chemical used.

(C) Amount of chemical fed.

(D) Residual concentration of chlorine dioxide test results from the distribution and plant.

(2) An individual set of records shall be maintained for each installation when more than one source of water with separate disinfection equipment is used.

(3) A copy of the daily operating report shall be maintained by the certified operator in charge of the public water system

(4) Records for all disinfection shall be kept for a period of five years.

(h) Other forms of disinfection may be used provided that there is some type of measurement in the distribution system to determine the effectiveness of the disinfection.

(i) Disinfection requirements for satellite communities are as follows:

(1) Satellite community water supplies are required to monitor for disinfection concentration at the entry point and throughout to distribution system.

(2) Disinfection facilities shall be installed and used:

(A) whenever the residual in any active part of the distribution system cannot be maintain at the above mention residuals for chlorine, Chloramines or chlorine dioxide

(B) if daily operating report records of chlorine, chloramines or chlorine dioxide residuals are not kept and submitted to the Agency.

(j) If it is determined by the commissioner that the residual levels for chlorine, chloramines and chlorine dioxide are not performing sufficiently to their intended use the system shall be required to increase those levels.

(k) Other forms of disinfection may be used that have not developed extensive experience or records of use in the state of Indiana, provided that the applicant submits evidence that the installation, process, or technique will produce drinking water of satisfactory quality, demonstrate a way to measure a disinfection residual, and normal operating pressure at the peak operating flowrate in accordance with this article.

(l) All Community water systems and Nontransient Noncommunity water systems with susceptible populations as described in 327 8-3.4-9 and all Transient Noncommunity

water systems that employ complex treatment as determined by the commissioner shall disinfect unless the systems meet all of the following requirements to be considered exempt from chlorination:

(1) The population served by a community water system does not exceed five hundred (500) individuals based upon the latest census figures or complete records of individuals served.

(2)Verification will be based on the driller's log, visual inspection of the well(s), general geology of the area, and results of bacteriological analyses performed on raw water coliform samples. Systems which do not have this data may apply for an exemption as long as samples are satisfactory.

(3) The system shall not have a history of persistent or recurring contamination as indicated by sampling results which show violation of the distribution water quality requirements for the most recent five year period. Verification will be based on a three (3) year compliance period. The most recent twelve (12) months will be weighted more heavily. New systems without this data may apply for an exemption based on available samples.

(4) The system shall not provide any raw water treatment other than fluoridation treatment or softening. This will be verified by facility inspection.

(5) Disinfection exemptions are valid until revoked. A disinfection exemption shall be revoked immediately without prior notice if a supply fails to meet any of the exemption requirements. An application for a Construction Permit for the installation of chlorination equipment shall be made within sixty (60) days following revocation. Disinfection equipment shall be installed and a properly certified operator shall be retained or an appeal filed with the Indiana Department of Environmental Management within ninety (90) days following revocation.

(6) One or more of the following conditions will result in revocation:

(A) Increase in population to greater than five hundred (500) individuals.

(B) Addition of a new source subject to contamination or finding that an existing source is subject to contamination based on raw water bacteriological analyses records.

(C) Development of a history of recurring or persistent contamination as indicated by sampling results.

(D) Addition of treatment other than fluoridation or softening.

(E) Failure to maintain an active program of educating water consumers on prevention of contamination.

(F) failure to have a certified operator or registered person for more than fifteen (15) days.

(G) Failure to submit bacteriological samples as required by 327 IAC 8-2-8 during more than three months of the past twelve (12) months or for two consecutive sampling periods.

(7) If a system is reclassified due to any of the above circumstances mentioned in 327 IAC 8-13-9 (l) (6), they shall be notified according to 327 IAC 8-12-2.5 (c) and required to employ a person that meets 327 IAC 8-12-1 (1) with emphasis placed upon the system demonstrating to the commissioner that the applicant experience meets the requirements described in 327 IAC 8-12-1 with experience not necessarily under a certified operator.

(m) The commissioner may require systems that are not mentioned in section(l) to disinfect if one of the following would occur:

(1) Four (4) total coliform positive distribution samples in a four (4) quarter monitoring period.

(2) Two (2) fecal coliform positive distribution samples in a four (4) quarter monitoring period.

(3) The design of the well, distribution, or water treatment is determined to continually cause coliform positive samples.

(n) All Chemicals that are being added shall meet the following requirements:

(1) A copy of the daily operating report records signed by the certified operator or registered person in responsible charge shall be submitted to the Indiana Department of Environmental Management each month. These operating reports shall show the following:

(A) Name of chemical.

(B) Amount of water pumped.

(C) Amount of chemical used.

(D) Amount of chemical fed.

(E) Testing of the quantity of chemical in the water.

(2) An individual set of records shall be maintained for each installation when more than one source of water with separate chemical feed equipment is used.

(3) A copy of the daily operating report shall be maintained by the certified operator in charge of the public water system.

(4) Records for all chemical feed shall be kept for a period of five (5) years.

(5) Chemicals shall be added to the water system per manufacturers suggestion or by the Recommended Standards for Water Works.

(6) Laboratory equipment shall be provided where applicable for determining the effectiveness of the chemical treatment.

(o) Preventive maintenance inspections shall be performed on a routine bases on all equipment according to the requirements of the manufacturer suggestion or if determined otherwise by the agency.

(p) All chemicals shall be handled in accordance to IAC 327 8-1 Public Water Supply Direct Additive and Indirect Additive Standards.